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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,869

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Peter Holzheu

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EXAMINER

DRIGGERS-FOURNET, GWENDOLYN

ART UNIT

PAPER NUMBER

3679

MAIL DATE

DELIVERY MODE

07/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/576,869

Applicant(s)

HOLZHEU, PETER

Examiner

Gwendolyn Fournet

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

This communication is a final office action on the merits. Claims 1-12, as amended, are currently pending and have been considered below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-4, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al (US 6,443,502; referred to as Iida), in further view of Breaker (US 5,427,386).

Regarding claim 1, Iida discloses a flanged joint (120) for a pressurized medium (column 1 lines 17-18 which disclose refrigerant in a refrigeration cycle), the flanged joint comprising:

a first component (7) and a second component (8) each component including a facing flange surface (see figure 5 the surface around holes (55) and (58)) projecting from the component (see figure 5) and facing the facing flange surface of the other component (see figure 5), and each component having an interior portion (54 and 57) configured to guide or store a pressurized medium (column 6 lines 19-20 and 32-33 which disclose refrigerant flowing through holes (54) and (57));

an annular groove (51) and a working diameter radially opposing the annular groove (see figure 5, the surface area of female block (8) which opposes annular groove (51)); and

at least one lamella ring (gaskets (4) and (5) which are broadly considered lamella rings) held in the annular groove (see figure 5) and biased, essentially without a gap, against the working diameter (see figure 5 which illustrates no space between the working diameter and the gaskets).

lida fails to disclose at least one flat gasket held between and contacting the facing flange surfaces of the first and second components, the annular groove being located between the interior portion and the at least one flat gasket, and the at least one lamella ring being arranged upstream of the at least one flat gasket in a direction of a pressure difference between a pressure side of the flanged joint and an environmental side of the flanged joint.

However, Breaker discloses a protective seal having at least one flat gasket (34) held between and contacting the facing flange surfaces (32, 42) of the first and second components (14, 18), the annular groove (40) being located between the interior portion

(see figure 2 near (36)) and the at least one flat gasket (see figure 2), and the at least one lamella ring (44) being arranged upstream of the at least one flat gasket (see figure 2) in a direction of a pressure difference between a pressure side of the flanged joint (see figure 2 near (36)) and an environmental side of the flanged joint (see figure 2 near numeral (20)).

Therefore, from the teachings of Breaker it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction device of lida to include an upstream seal as taught by Breaker in order to reduce or eliminate leakage due to separation gaps resulting from thermal expansion (column 2 lines 59-61).

In regard to the phrase "configured to guide or store a pressurized medium," the components above are capable of guiding or storing a pressurized medium (column 6 lines 19-20 and 32-33 which disclose refrigerant flowing through holes (54) and (57)).

Regarding claim 2, lida further discloses the at least one lamella ring is held in the annular groove with little axial play (see figure 5 which illustrates the gasket's (4) axial movement is limited because it abuts recessed portion (51) and gasket (5)).

Regarding claim 3, lida further discloses the at least one lamella ring is arranged in the annular groove parallel to a plane of flange surfaces (see figure 5 which illustrates gasket (4) lies in a plane which is parallel to the facing surfaces of the flanges) of the at least one flat gasket (see figure 2a).

lida fails to disclose the flange surface of the at least one flat gasket, however, Breaker discloses a protective seal having a flat gasket (34) between flange surfaces (32, 42).

Therefore, from the teachings of Breaker it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction device of lida to include an seal as taught by Breaker in order to reduce or eliminate leakage due to separation gaps resulting from thermal expansion (column 2 lines 59-61).

Regarding claim 4, lida further discloses the at least one lamella ring includes a plurality of lamella rings arranged axially in series (see figure 5 which illustrates gaskets (4) and (5) are axially aligned).

Regarding claim 10, lida further discloses the first and second components include a radial overlapping area (see figure 5) such that one of the components includes an axially protruding annular collar (52) engaging a complementary, annular recess (53) of the other component, the other component having an inner circumferential surface forming the working diameter (see figure 5).

Regarding claim 11, lida further discloses the annular groove opens toward an environmental side (see figure 5) and is formed in the axially protruding annular collar (see figure 5).

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over lida et al, in view of Breaker, as applied to claims 1-4, 10 and 11 above, and in further view of Ekholm et al. (US 6,059,323; Ekholm).

Regarding claim 5, the combination of lida and Breaker discloses all the structural limitations of the claimed invention as recited in claim 4, and lida further discloses the plurality of lamella rings includes at least one lamella ring facing a pressure side (5) and at least one lamella ring facing an environment side (4).

The combination of lida and Breaker fail to explicitly disclose those rings being biased against the working diameter, and the plurality of lamella rings includes at least one lamella ring biased against a bottom of the annular groove and axially arranged between the at least one lamella ring facing the pressure side and the at least one ring facing the environment side.

However, Ekholm discloses an expansion unit with those rings (see figure 2a, the seal ring adjacent (24) which faces the pressure side, and the seal ring at the opposite end of sealing arrangement (25) which faces the environmental side) being biased against the working diameter (see figure 2a at (2)), and the plurality of lamella rings includes at least one lamella ring is biased against a bottom of the annular groove (28) and axially arranged between the at least one lamella ring facing the pressure side and the at least one ring facing the environment side (see figure 2a).

Therefore, from the teachings of Ekholm, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction

device of the combination of lida and Breaker to include multiple seal rings as taught by Ekholm in order to seal against various pressures (column 2 lines 28-29).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over lida et al, in view of Breaker, as applied to claims 1-4, 10 and 11 above, and in further view of Ekholm et al., and Kakehi (US 5,934,680).

Regarding claim 6, the combination of lida and Breaker discloses all the structural elements of the claimed invention as recited in claim 1, but fails to explicitly disclose the at least one lamella ring includes a single-turn lamella ring with an axial abutment opening of a steel band extending in one plane.

However, Ekholm discloses a lamella ring of a steel band (see figure 2c (27c), and column 8, lines 8-11, which disclose that inwardly facing sealing surface (27) has an annular metal ring, and column 3, line 39, which discloses that the metal is preferably steel) extending in one plane (see figure 2c).

Therefore, from the teachings of Ekholm, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction device of the combination of lida and Breaker to include a steel ring as taught by Ekholm in order to prevent corrosion of the seal ring (column 3 lines 39-41).

Kakehi discloses a split seal ring (see figure 1A (1)) with an axial abutment opening (see figure 1A (2) and (2')).

Therefore, from the teachings of Kakehi, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction

device of the combination of Iida and Breaker to include an abutment opening as taught by Kakehi to facilitate mounting (column 1, lines 17-18).

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al, in view of Breaker, as applied to claims 1-4, 10 and 11 above, and in further view of Ekholm et al., Kakehi, and Jacocks (US 2,202,492).

Regarding claims 7-8, the combination of Iida and Breaker discloses all the structural elements of the claimed invention as recited in claim 1, and in combination with Ekholm and Kakehi discloses the single-turn disk-like lamella ring of a steel band as discussed in claim 6 above.

The combination of Iida, Breaker, Ekholm, and Kakehi fail to explicitly disclose the at least one lamella ring is a single-turn disk-like lamella ring of a steel band formed in a manner and form of a disk spring, wherein the single-turn disk-like lamella ring includes at least a pair of disk-like lamella rings having a conical form and axially opposing each other with respect to their conical form.

However, Jacocks discloses a gasket for a fluid coupling formed in a manner and form of a disk spring with a conical form (page 2, lines 4-5, which disclose a frusto conical gasket), wherein the single-turn disk-like lamella ring includes at least a pair of disk-like lamella rings (see figure 1, (16) and (16)) axially opposing each other with respect to their conical form (page 3, lines 30-33, which disclose a plurality of frusto-conical ring members inclined with respect to one another).

Therefore, from the teachings of Jacocks, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction device of the combination of Iida, Breaker, Ekholm, and Kakehi to include a plurality of frusto-conical gaskets as taught by Jacocks in order to relieve the coupling of multiple forces (page 1, lines 26-32).

7. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iida et al, in view of Breaker, as applied to claims 1-4, 10 and 11 above, and in further view of Ekholm et al., Kakehi, and Morgan (US 5,460,459).

Regarding claims 9 and 12, the combination of Iida and Breaker discloses all the structural elements of the claimed invention as recited in claim 1, and in combination with Ekholm and Kakehi discloses the single-turn disc-like lamella ring of a metal band wherein the metal band is a steel band as discussed in claim 6 above.

The combination of Iida, Breaker, Ekholm, and Kakehi fail to explicitly disclose wherein the at least one lamella ring is a double-turn lamella ring of constant width, and ends of double-turns of the ring protrude toward an inside or towards an outside in a relaxed state of the double-turn lamella ring, such protrusion departing from a circular form provided by a remainder of the double-turn lamella ring, and the ends are in alignment with the circular form of the double- turn lamella ring in a biased state.

However, Morgan discloses a fitting wherein the at least one lamella ring (see figure 9 (20)) is a double-turn lamella ring (column 1, lines 39-41, which disclose single or multiple turns) of a metal band (column 3, line 35, which discloses member (20)

made of metal) of constant width (see figure 3), and ends of double-turns of the ring protrude towards an inside or towards an outside in a relaxed state of the double-turn lamella ring (see figure 9, at (42) and (44)), such protrusion departing from a circular form provided by a remainder of the double-turn lamella ring, and the ends are in alignment with the circular form of the double- turn lamella ring in a biased state (see figure 12).

Therefore, from the teachings of Morgan, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the leakage restriction device of the combination of Iida, Breaker, Ekholm, and Kakehi to include a ring with more than one turn as taught by Morgan to produce a firmer wedging engagement against both the groove and the pipe (column 3, lines 12-14, and lines 23-30).

Response to Arguments

8. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

It is noted that applicant has amended the claims pursuant to the interview on May 28, 2009. While the amendment of claim 1 does overcome the Ekholm prior art reference, as was previously advanced, it does not, place the application in condition for allowance as evidenced by the instant rejections of record.

Examiner recommends that applicant consider further amendment of the claims to more specifically describe the features of the invention. For example, applicant may

more specifically describe the structure of the flat gasket, how the facing flange surfaces are planar, and include a structural description of the lamella rings in claim 1.

Also to be noted is that the location of the annular groove in claim 1 is defined as "between" the interior portion and the flat gasket, but it is not necessarily located on either of the components. Applicant may consider rewording the claim since this limitation may be broader than applicant intended.

Applicant is further reminded that no new matter should be introduced if additional amendments are made.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Valentine (US 4,429,905), Mezei (US 4,198,076), Hoegger (US 6,299,219), Williams et al (US 4,438,957), Hutchens et al (US 5,542,681) for multi-seal couplings.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Applicant's amendment added the following claim language in claim 1 lines 3-6, "each component including a facing flange surface projecting from the component and facing the facing flange surface of the other component, and each component having an interior portion configured to guide or store a pressurized medium," in line 7, the flat gasket is now held between "and contacting the facing

flange," in lines 9-10 the working diameter "radially opposing the annular groove," and in lines 13-16 "the at least one lamella ring being arranged upstream of the at least one flat gasket in a direction of a pressure difference between a pressure side of the flanged joint and an environmental side of the flanged joint."

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn D. FOURNET whose telephone number is (571)270-5740. The examiner can normally be reached on Mon-Thurs 7:30a-6:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on (571)272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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07/07/09

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